# ARCHIVES OF
# Biochemistry and Biophysics

## Volume 86 • 1960

*Executive Editors*

Paul D. Boyer
Melvin Cohn
W. D. McElroy
F. F. Nord
Howard K. Schachman
H. Theorell

*Editors*

Karl Folkers
Henry Lardy
Luis F. Leloir
C. H. Li
C. M. McCay
Thomas L. McMeekin
H. S. Mason
A. Neuberger
C. Rimington
Earl R. Stadtman
Thressa C. Stadtman
K. V. Thimann
W. W. Umbreit
Sidney Weinhouse
R. J. Williams
R. W. G. Wyckoff

ACADEMIC PRESS
*New York and London*

Copyright ©, 1960, by Academic Press Inc.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

FROZEN
01/21/98

Made in the United States of America

FROZEN
03 18 97

61-11449

QP501
A77

V. 86-87

# Contents of Volume 86

Number 1, January 1960

Hans Neurath. Obituary: Kaj Ulrik Linderstrøm-Lang ..... i
Gordon C. Mills. Glutathione Peroxidase and the Destruction of Hydrogen Peroxide in Animal Tissues ..... 1
John R. Allen, B. A. Sullivan and Harold L. Dobson. Cytochrome Oxidase and Reductase in Muscle from Vitamin E-Deficient Rabbits ..... 6
Torsti Salo and Barbara Blair. A Gas-Counting Method for Determination of Carbon-14 of Proteins Labeled with Both Carbon-14 and Iodine-131 ..... 10
K. Laki and J. Standaert. The Minimal Molecular Weight of Actin Estimated with the Use of Carboxypeptidase A ..... 16
Paul O. P. Ts'o and Alice Lubell. The Concentration and Collision Frequency of Microsomal Particles and Supernatant RNA in Rabbit Reticulocytes ..... 19
C. A. Zittle and E. W. Bingham. Reactivity of the Alkaline Phosphatases of Bovine Milk and Intestinal Mucosa with the Substrates Phenyl Phosphate and *o*-Carboxyphenyl Phosphate ..... 25
Jerome F. Fredrick and Arthur C. Gentile. The Effect of 3-Amino-1,2,4-triazole on Phosphorylase of *Oscillatoria princeps* ..... 30
D. E. Buetow and B. H. Levedahl. The Relationships between Steroid Molecular Structure and Cell Growth ..... 34
Raymond Reiser, Mary Carr Williams and Mary Frances Sorrels. Tissue Lipide Relationships from Their Composition and Acetate Incorporation ..... 42
Leonard R. Axelrod and Nicholas T. Werthessen. The Metabolism of Estrone-16-$C^{14}$ in Bovine Blood ..... 53
Joseph Larner, Carlos Villar-Palasi and David J. Richman. Insulin-Stimulated Glycogen Formation in Rat Diaphragm. Levels of Tissue Intermediates in Short-Time Experiments ..... 56
Carlos Villar-Palasi and Joseph Larner. Uridinediphosphate Glucose Pyrophosphorylase from Skeletal Muscle ..... 61
G. A. Leveille, A. S. Feigenbaum and H. Fisher. The Effect of Dietary Protein, Fat and Cholesterol on Plasma Cholesterol and Serum Protein Components of the Growing Chick ..... 67
Gerald Mechanic, S. J. Skupp, Lenore B. Safier and Andre C. Kibrick. Isolation of Two Peptides Containing Hydroxyproline from Urine of a Patient with Rheumatoid Arthritis ..... 71
Donald S. Amatuzio. The Rate of Coupling of Diazotized Sulfanilic Acid with Bilirubin ..... 77
James B. Walker and Margaret S. Walker. Inhibition of Sulfhydryl Enzymes by Formamidine Disulfide ..... 80
Konrad Keck, Henry R. Mahler and Dean Fraser. Synthesis of Deoxycytidine-5′-Phosphate Deaminase in *Escherichia coli* Infected by T2 Bacteriophage ..... 85
H. I. Jacobson, G. N. Gupta, C. Fernandez, Sharon Hennix and E. V. Jensen. Determination of Tritium in Biological Material ..... 89

H. E. Wright, Jr., W. W. Burton and R. C. Berry, Jr. Soluble Browning Reaction Pigments of Aged Burley Tobacco. I. The Nondialyzable Fraction ..... 94
R. L. Heberling, J. J. Berky and R. W. Stone. Dissimilation of Citric Acid by Extracts of *Penicillium chrysogenum* ..... 102
Choh Hao Li, Phil G. Squire and Ute Gröschel. Purification and Properties of Human Pituitary Follicle-Stimulating and Interstitial-Cell Stimulating Hormones ..... 110
Milton B. Engel and Norman R. Joseph. Titration Curves of Colloidal Surfaces. III. Wool ..... 117
Tsutomu Yamaha and Carlos E. Cardini. The Biosynthesis of Plant Glycosides. I. Monoglucosides ..... 127
Tsutomu Yamaha and Carlos E. Cardini. The Biosynthesis of Plant Glycosides. II. Gentiobiosides ..... 133
J. S. Kahn and W. H. Johnson. The Localization of Myosin and Paramyosin in the Myofilaments of the Byssus Retractor Muscle of *Mytilus edulis* ..... 138
Georg W. Oertel and Kristen B. Eik-Nes. Isolation of Pregnane-3$\alpha$, 20$\alpha$-diol from Systemic Human Blood ..... 144
Georg W. Oertel, Inge N. Beckmann and Kristen B. Eik-Nes. The Measurement of Pregnane-3$\alpha$, 20$\alpha$-diol and Its Isomers in Human Plasma ..... 148

Letters to the Editors

I. B. Chatterjee, N. C. Kar, N. C. Ghosh and B. C. Guha. On a Lipid Cofactor Involved in the Conversion of L-Gulonolactone into L-Ascorbic Acid .. 154
O. Gabriel, J. Dain, H. H. Zinsser and Z. Dische. Fractionation of Nondialyzable Carbohydrate-Protein Complexes of the Male Urine ..... 155
Book Reviews ..... 157
Erratum ..... 160
List of Forthcoming Papers ..... 161

Number 2, February 1960

Sergie N. Timasheff, Raymond A Brown, and John R. Cann. Obituary: John R. Kirkwood ..... i
E. N. Petzold and F. W. Quackenbush. Zeinoxanthin, a Crystalline Carotenol from Corn Gluten ..... 163
Saul I. Cohen. The Determination of Arginine Released in Human Blood Plasma After Plasminogen Activation. Use of a Cation-Exchange Resin ..... 166
Paul Saltman and Howard Boroughs. The Accumulation of Zinc by Fish Liver Slices ..... 169
J. A. Maclaren. The Estimation of Basic Groups in Wool by Dye-Uptake Measurements ..... 175
D. G. Markees, Viriginia C. Dewey and G. W. Kidder. The Inhibition of Certain Protozoa by Diaminoalkoxypyridines ..... 179
R. R. Grunert and E. L. Rohdenburg. $\alpha$-Lipoic Acid and Heavy-Metal Inhibition of the Pyruvic Oxidase Enzyme System of *S. faecalis* 10C1 ..... 185
R. R. Grunert. The Effect of DL-$\alpha$-Lipoic Acid on Heavy-Metal Intoxication in Mice and Dogs ..... 190
Joseph Tonzetich and Morley R. Kare. Adenosinetriphosphatase in Red and White Muscle ..... 195
Francis Binkley and Carmen Torres. Spectrophotometric Assay of Peptidase Activity ..... 201
S. Shankman, S. Higa, H. A. Florsheim, Y. Schvo and V. Gold. Peptide Studies. II.

Growth-Promoting Activity of Peptides of L-Leucine and L- and D-Valine for Lactic Acid Bacteria ..... 204
George V. Vahouny, Robert M. Mayer, J. H. Roe and C. R. Treadwell. Determination of 3-$\beta$-Hydroxy Sterols with Anthrone Reagent ..... 210
George V. Vahouny, Robert M. Mayer and C. R. Treadwell. Comparison of Lymphatic Absorption of Dihydrocholesterol and Cholesterol in the Rat ..... 215
M. N. Swaffield and G. E. Foley. Changes in the Cellular Content of Ribonucleic Acid, Deoxyribonucleic Acid and Protein in Cultured Cells during Logarithmic Growth ..... 219
H. S. Mason, D. J. E. Ingram and B. Allen. The Free Radical Property of Melanins ..... 225
H. C. Longuet-Higgins. On the Origin of the Free Radical Property of Melanins ..... 231
Morton M. Weber and Morten N. Swartz. Pyridine Nucleotide Coenzymes of *Mycobacterium phlei* ..... 233
M. J. Kronman, L. E. Weinberger and R. J. Winterbottom. The Water-Soluble Proteins of Bovine Skeletal Muscle ..... 238
D. E. Wright. Pectic Enzymes in Rumen Protozoa ..... 251
C. L. Baugh, G. W. Claus and C. H. Werkman. Heterotrophic Fixation of Carbon Dioxide by Extracts of *Nocardia corallina* ..... 255
Jacob Struck, Jr. and Irwin W. Sizer. The Substrate Specificity of Glutamic Acid Dehydrogenase ..... 260
Eugene J. Smith and Robert W. Wheat. Acid-Soluble Nucleotide Spectrum of *Neurospora crassa* ..... 267
Carlos Villar-Palasi and Joseph Larner. Levels of Activity of the Enzymes of the Glycogen Cycle in Rat Tissues ..... 270
Kaoru Harada and Sidney W. Fox. The Thermal Copolymerization of Aspartic Acid and Glutamic Acid ..... 274
Sidney W. Fox and Kaoru Harada. Thermal Copolymerization of Amino Acids in the Presence of Phosphoric Acid ..... 281
H. T. Epstein. Studies of Phage Growth in Irradiated Cells ..... 286
Isao Yamazaki and Hiroshi Souzu. The Mechanism of Indoleacetic Acid Oxidase Reaction Catalysed by Turnip Peroxidase ..... 294
James J. Peifer, Frank Janssen, Philip Ahn, William Cox and Walter O. Lundberg. Studies on the Distribution of Lipides in Hypercholesteremic Rats. I. The Effect of Feeding Palmitate, Oleate, Linoleate, Linolenate, Menhaden and Tuna Oils ..... 302
Syōzō Tuboi and Akio Huzino. Enzymic Activation of Peptide ..... 309
H. W. Sievert, S. H. Lipton and F. M. Strong. Quantitative Determination of Cyanoacetic Acid as an Enzymic Product of $\beta$-Aminopropionitrile ..... 311

Letters to the Editors

Agnar P. Nygaard. The Formation of D- and L-Lactic Cytochrome *c* Reductase during Respiratory Adaptation in *Saccharomyces cerevisae* ..... 317
Sidney V. Rieder. The Physiological Source of the Ureido Carbons of Uric Acid ..... 318
Book Reviews ..... 320
List of Forthcoming Papers ..... 325
Books Received for Reveiw ..... 326
Announcement ..... 327
Author Index ..... 328
Subject Index ..... 330
Index of Book Reviews ..... 332